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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/938,173 09/26/97 BROCKHOFF

A P61957

EXAMINER

IM62/0831

BECK & TYSVER, PLLP
1011 FIRST STREET SOUTH SUITE 440
HOPKINS MN 55343

KIM, S

ART UNIT

PAPER NUMBER

1723

13

DATE MAILED:

08/31/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/938,173

Applicant(s)
Brockhoff

Examiner
John Kim

Group Art Unit
1723



☒ Responsive to communication(s) filed on Apr 14, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-17 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) 1 and 2 is/are allowed.

☒ Claim(s) 3-14 and 17 is/are rejected.

☒ Claim(s) 15 and 16 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 12

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 49-15341 (hereinafter referred to as JP '341) in view of Great Britain Patent No. 1,352,166 (hereinafter referred to as GB '166). JP '341 teaches a cyclone device for removing gas from liquid comprising a non-rotating eddy chamber (1) having an inlet and an outlet for producing a cyclone eddy current that separates gas from liquid where gas is removed through an outlet (5) in a radially inner cyclone eddy current region, a cyclone inlet comprising multiple wings supporting and attached to an inserted body, streamline shaped as described in claims 8, 10-12 which shape causes a narrowing funnel shape of liquid inlet channel as described in claims 3 and 6, in a housing with constant diameter and gas outlet (5) and a portion of liquid outlet (1) positioned in a coaxial manner downstream from a cyclone outlet as described in claims 4-5 and 14, the blood inlet channel and the eddy chamber having respectively aligned center lines as described in claim 13, the cyclone outlet for liquid phase and the eddy chamber having respectively aligned center lines as described in claim 14 (see figure 1). Claims 3-14 essentially differ from the apparatus of JP '341 in reciting a helical circular path made by at least one helically extending rib passing around the insert body. GB '166 teaches a cyclone device with helical elements (6) on an inserted body (5) for driving gas in an intense whirling motion which results in

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the assembly of gas along the axis of the conduit owing to its low density relative to the liquid (see figure; page 2, lines 12-20). It would have been obvious to a person of ordinary skill in the art to modify the multiple wings on the inserted body of JP '341 for the helical elements in order to improve intense whirling motion of gas to gather gas along the axis of the conduit for more efficient separation of gas as suggested by GB '166. At best, claim 17 differs from the apparatus of JP '341 modified by GB '166 in reciting a pressure supplying pump for liquid with positive pressure to the liquid inlet channel. It would have been obvious to a person of ordinary skill in the art to incorporate a pressure supplying pump to the cyclone apparatus of JP '341 modified by GB '166 since the entry of faster flowing liquid actuated by any pressure device such as a common pressure supplying pump enhances the whirling action around the helical elements and separates out gas more effectively from liquid.

3. Claims 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 1-2 are allowed.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kim whose telephone number is (703) 308-2350. The examiner can normally be reached on Monday, Tuesday, Thursday and Friday from 9:00 AM - 5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached on (703) 308-0457. The fax phone number for official response

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after final action is (703) 305-3599, and the fax phone number for all other official faxes is (703) 305-7718.

When sending a draft amendment by fax, please mark the paper as "DRAFT"; otherwise, mark the paper "OFFICIAL". This will expedite the processing of the paper.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0651.


John Kim
Primary Examiner
Art Unit 1723

J. Kim
August 27, 1999